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Wooten has been appointed professor of botany, and T. D. A. Cockerell has been appointed professor of entomology in addition to being Station Entomologist.

ROBERT B. OWENS, for the past seven years professor of electrical engineering in the University of Nebraska, has resigned in order to accept a similar position in McGill University, Montreal. His successor has not yet been appointed.

T. PROCTOR HALL has been appointed professor of physics in Kansas City University.

DR. BLOCHMAN, professor of zoology in the University of Rostock, has been called to Tübingen as successor to the late Professor Eimer; Dr. Fritsch has been appointed Director of the Botanical Museum of the University of Vienna; Dr. D. K. Morris, lecturer in technical electricity in the Mason University College, Birmingham; Dr. D. Frazer Harris, lecturer in physiology in the University of St. Andrew's. Dr. Kerschner, of the University at Innsbruck, has been promoted to a full professorship of histology; Dr. Reitzenstein, of the University of Mühlhausen, has qualified as docent in chemistry in the University at Würzburg; Dr. Kolkwitz, in botany in the University of Berlin; Dr. Klingenberg, in mechanical engineering, in the Polytechnic Institute of Berlin; Dr. Schröter, in botany, in the University at Bonn, and Dr. Rothmund, in physical chemistry, in the University of Munich.

DISCUSSION AND CORRESPONDENCE.

ON THE OCCURRENCE OF PLACOCEPHALUS (BIPALIUM) KEWENSE IN THE SANDWICH ISLANDS.

Two specimens of land-planarians from the Sandwich Islands were sent to the writer from the National Museum for identification which proved to be the interesting Placocephalus (Bipalium) Kewense. They were taken by Dr. Steiniger in November, 1896, on the island of Oahu, at the top of the Pali, near Honolulu. The specimens were small ones, and in the living condition could not have exceeded 150 mm. in length. If we except New Zealand, this form has been known in the Pacific only from Upolu, one of the Samoan Islands, and its occurrence in the Sandwich Islands is of es-

pecial interest in bridging over a large gap in the distribution of so cosmopolitan a form. Doubtless it has also been introduced there, where so much of the vegetation is of foreign origin.*

The writer† has recorded the occurrence of this species in the United States at Cambridge, Mass., and has since received specimens from Baltimore, Md.; Pittsburg and Allegheny, Pa., and Springfield, Ohio, in every case from green-houses. Outside of the tropics the form has been taken only in plant houses. The writer would be grateful for any specimens or information from the Pacific Coast.

W. McM. WOODWORTH.

MUSEUM OF COMPARATIVE ZOOLOGY,
CAMBRIDGE, MASS., August 15, 1898.

SCIENTIFIC LITERATURE.

La Theorie Platonicienne des sciences. Par ÉLIE HALÉVY. Paris, Félix Alcan.

It is to be feared that Mr. Halévy and his reviewer have gained admission to the pages of SCIENCE under cover of an *équivoque*. The word 'sciences' in Mr. Halévy's title has perhaps a somewhat broader meaning than that it bears in ordinary English usage. It is rather 'knowledge' than 'science.' Mr. Halévy's book is not an account of Plato's supposed contributions to mathematics and astronomy, or a discussion of his casual utterances concerning the inchoate physical sciences of the fourth century B. C. It deals rather with epistemology than with physical science. Its main thesis is that the Platonic philosophy is the result of a dialectical analysis of the epistemological conditions of the sciences—of the 'knowledges,' of the certainty of human knowledge. The arts and sciences exist. What are the logical presuppositions of their existence and of our sense of certainty regarding them? Whatever philosophy of ideas is involved in the very existence of a body of arts and sciences must be a true philosophy. In constructing such a philosophy out of Plato's dramatic dialogues Mr. Halévy displays great ingenuity and power of consecutive logical thought. He over-refines,

* For the distribution of this interesting form see Colin, A. Sitzungs. Gesell. naturf. Freunde, Berlin, Jahrg., 1892, No. 9, p. 164.

† *American Naturalist*, Vol. XXX., p. 1046, 1896.

over-systematizes, and occasionally strains the meaning of a text. But those who agree with him least will profit by rethinking with such a vigorous and subtle intelligence the entire content of Plato's thought. More specific criticism would involve us in questions of metaphysics or in the philological interpretation of texts. Instead of entering upon these details I propose to avail myself of this opportunity to say a word concerning Plato's attitude towards the physical sciences, and the notion, widely prevalent among modern men of science, that, while Aristotle is the 'master of those who know' and the pioneer of science in a prescientific age, Plato is the master of those who dream and the incarnate antithesis of the scientific spirit. If this is an error, a brief statement of its causes may be not without interest. Chief of these is the fact that Plato, despite his high attainments in mathematics, was essentially a literary artist and philosopher, while Aristotle, as Lewes' well-known book shows in detail, was a serious investigator, or at least collector of facts, in the biological sciences, and said one or two very quotable things about the charms of the study of Nature's humblest products.

But the question is not so much of professional occupation as of temper, insight and influence. Now Plato, taking for granted the secondary education in 'music' and gymnastics, demanded that the higher education should be based on a firm foundation of mathematics, astronomy, and mathematical physics; he asked for the endowment of scientific research, and in his *obiter dicta* concerning the imperfect science of his time he displayed marvellous tact in avoiding the colossal errors into which Aristotle was led by his reliance on verbal definitions and his 'spirit of system.' How is it, then, that the popular judgment sets Plato down as an opponent of science? No better explanation can be found than Bacon's statement that Plato corrupted science by theology, while Aristotle corrupted it by logic. Plato's predominant ethical interest and his dread of a certain hard dogmatic materialism associated with the name of Democritus led him to insist on the antithesis of spirit and matter, and on a teleological view of the world, in language which sentimentalists have employed as a weapon in the supposed

'warfare of religion and science.' Like Emerson, he has borne the burden of the folly of disciples attracted to him solely by a vague sense of the spiritual edification and beauty dimly apprehended in his words. Of course, a teleological view of the world is wholly compatible with science provided the teleology be sufficiently abstract and comprehensive. It is the '*sur-naturel particulier*' with which science wars. But just here Plato's literary and poetic genius has done him harm with certain severe but somewhat literal-minded thinkers. For in his *Timæus* he deliberately undertook to make the entire universe, as known to the science of the fourth century B. C., a poetical allegory of spiritual and teleological meanings. The literary beauty of this 'Hymn of the Universe' is a matter of taste—perhaps of acquired taste. But its crude literal acceptance is possible only to a defective historic sense, and leads to the grossest misinterpretations both of Plato and of ancient thought generally. Now, unfortunately, the chief source from which too many men of science derive their impression of Plato's conception of the world is precisely the *Timæus* in the bald, literal and unsympathetic *résumés* given by Grote and Draper. I hope I shall not be accused of wilful paradox when I add that this illustrates one of the chief dangers of an education exclusively in physical science—the excessive reliance on authority.

'Science,' of course, knows no authority, and in the end tests all things. But the individual man of science, unless he undertakes to repeat the entire investigation, must accept the experimental results of his confrères on authority, first satisfying himself, if possible, of the general validity of the method and the good scientific standing of the investigator. This habit of mind he takes with him to the study of historical and philological questions where (I do not speak of the general public) it is much easier to control an investigation by an appeal to the sources, and where consequently (among trained men) secondary authorities count for less. It would be interesting to illustrate this by the abuse formerly of Lewes' 'Biographical History of Philosophy,' and, since Tyndall's Belfast address, of Lange's clever but one-sided 'History of Materialism.' But I have already

abused my usurped license of wandering from my text.

PAUL SHOREY.

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The Story of the Atmosphere. By DOUGLAS ARCHIBALD. Published in the Library of Useful Stories. New York, D. Appleton, & Co. 1897. Price, 40 c.

In the 'Story of the Atmosphere,' Mr Archibald has given us an excellent popular account of the most important features of modern deductive meteorology. His success in presenting the subject in such an elementary manner is really remarkable, and is without doubt due to his many years' interest in this branch of the science. Few Englishmen appear to have been greatly attracted by the deductive treatment of meteorology, and those who have shown by their writings that they have been pursuing this line of study have been most strongly represented by the Indian meteorologists, and foremost and earliest among these must be placed Blanford; and no Englishman has followed his lead more closely than Mr. Archibald, whose writings have received well merited attention during the past fifteen or twenty years.

It is, then, with the knowledge that Mr. Archibald is thoroughly familiar with his subject that we enter upon the perusal of his book; and, as we finish it, we must admit it to be an important and very satisfactory addition to our popular science literature.

Mr. Archibald has shown great skill in selecting the material that he presents to the reader, and he has given it in a very interesting manner. It is, however, more of a student's book than might appear at first sight. It is just the book for a well educated man or woman to take up and read as supplementary to studies formerly pursued in schools, and in the hands of a teacher of meteorology or physical geography it will prove a valuable addition to the elementary text-books on those sciences.

Mr. Archibald's remarks on the origin and height, nature and composition, pressure and weight, of the atmosphere are clear and interesting; but the chief value of the book, in the eyes of a specialist, lies in the chapters on the temperature and motions of the atmospheric

air. In these the author gives the reader the full benefit of his study of meteorological literature of various lands during the last score of years; during which time dynamical meteorology has made remarkable advances as a science, owing to the labor of various eminent physicists who have devoted considerable attention to it. In this portion of the book Ferrel's work has been given the prominence which it deserves, and the subjects presented have probably never been given in a clearer manner. It is interesting to note that the author has wisely reproduced some of Ferrel's original diagrams which have historic value.

Probably the most interesting chapter to the average reader is the one on 'Suspension and Flight in the Atmosphere.' This gives a succinct account of aerial navigation of all kinds—bird flights, ballooning, kite flying, air ships, etc. The various problems pertaining to these are elucidated and commented on with great discrimination. The last chapter deals very briefly but suggestively with 'Climate and Life in the Atmosphere.'

FRANK WALDO.

GREAT SMOKY MOUNTAINS, N. C.

NEW BOOKS.

Researches in the Uloa Valley, Honduras; Caverns of Copan. GEORGE BYRON GORDON. Cambridge, published by the Peabody Museum. 1898. Pp. 44 and 12 Plates.

Catalogue of Scientific Periodicals, 1865-1895. H. CARRINGTON BOLTON. Second Edition, 1897. Washington, Smithsonian Institution. 1898. Pp. vii+1247.

Forestry Conditions in Northern Wisconsin. FILBERT ROTH. Madison, Published by the State. 1898. Pp. vi+78.

Instincts and Habits of the Solitary Wasps. GEORGE W. PECKHAM and ELIZABETH G. PECKHAM. Madison. 1898. Pp. iv+245 and 14 Plates.

Symons' British Rainfall, 1897. G. J. SYMONS and H. SOWERBY WALLACE. London, Stanford. 1898. Pp. 239.

Calcul des conduites d'eau. G. DARIES. Paris, Gauthier-Villars et fils. 1898. Pp. 194.